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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/815,594

03/23/2001

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08/11/2004

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EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT

PAPER NUMBER

2672

DATE MAILED: 08/11/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/815,594

Applicant(s)

YOSHIDA ET AL.

Examiner

Motilewa A. Good-Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,7,8,10-12,16-18,20-22 and 26 is/are allowed.
- 6) ☒ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 3-6,8,9,13-15,19,20 and 22-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8, 9.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to the following communications:

Application, filed 03/23/2001; IDS, paper #2, filed 06/07/2001; IDS, paper #4, filed 04/15/2003; IDS, paper #8; IDS, paper #9, Amendment A, filed 11/24/2003.

This action is non-final.

2. Claims 1-26 are pending in this application. Claims 1, 10 and 17 are independent claims.

3. The present title of this application is "Image Processing Apparatus and Image Display Apparatus Using Same" (as originally filed)

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 7, 8, 10-12, 16-18, 20-22 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Funke et al., "Method and Device for Adding Noise to a Video Signal for Improving a Display of the Video Signal", class 348/622, 04/20/2004, filed 12/22/1998.

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Regarding claim 1, Funke discloses a first signal processing circuit (col. 1, lines 45-47) for applying gamma correction (col. 1, line 53) to an n-bit digital signal inputted as a video signal, and for converting the digital signal into an m-bit digital signal (col. 2, lines 4-26); and a second signal processing circuit for adding a noise signal (col. 1, lines 55-57) to the m-bit digital signal from said first signal processing circuit, and for outputting a Q-bit digital signal obtained from rounding off a less significant m-Q bit from the m-bit digital signal. (col. 1, lines 57-61)

Regarding claim 2, Funke discloses first signal processing circuit includes bit-converting means for converting the inputted n-bit digital signal into the m-bit digital signal in accordance with a pre-set value. (col. 1, lines 57-61)

Regarding claim 7, Funke discloses the noise signal is a random noise signal with no regularity in its cycle of amplitude. (col. 1, line 64)

Regarding claim 8, Funke discloses the noise signal is obtained from, by using an arbitrary noise pattern table, switching a starting point of the noise pattern table per field or per noise pattern table. (col. 57-61)

Regarding claim 10, Funke discloses an image processing apparatus, comprising: a signal processing circuit for adding a noise signal to an inputted m-bit digital signal, (col. 1, lines 45-57) and for outputting a Q-bit digital signal obtained from rounding off a less significant bit from the m-bit digital signal. (col. 1, lines 57-664)

Regarding claim 11, Funke discloses display means (col. 2, line 32-34) for displaying an image; and driving means for driving the display means. (col. 1, lines 10-13)

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Regarding claim 12, it is rejected based upon similar rational as above dependent claim 2.

Regarding claim 16, it is rejected based upon similar rational as above independent claim 10.

Regarding claim 17, it is rejected based similar rational as claim 1.

Regarding claim 18, Funke discloses second signal processing circuit includes: a noise generating circuit . . . (figure 1); an adding circuit for adding the noise signal . . . (figure 1); a bit number converting circuit for converting the bit number of the digital video signal . . . (figure 1)

Regarding claim 20, it is rejected based upon similar rational as claim 11.

Regarding claim 21, Funke discloses the display means is a liquid crystal display. (col. 2, lines 32-34)

Regarding claim 22, Funke discloses the image processing apparatus is separately provided. (col. 1, lines 45-47)

Regarding claim 26, Funke discloses the display means is a liquid crystal display. (col. 2, lines 32-34)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 3-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funke as applied to claim 1 above, and further in view of Yamamoto.

Regarding claim 3, Funke fails to disclose bit-converting means is a look up table, which outputs the m-bit digital signal that is the present value in accordance with the inputted n-bit digital signal.

(Yamamoto discloses the log conversion circuit comprising a LUT, col. 4, lines 44-45)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the display driving method disclosed in Funke, the LUT circuit disclosed in Yamamoto, to provide quick conversion because a LUT is known to provide conversion tables with requiring further computational processing.

Regarding claim 4, Funke fails to disclose said bit converting means is a calculating device for converting the n-bit digital signal into the m-bit . . . digital signal by numerical calculation.

(Yamamoto discloses an inverse masking circuit that implements the inverse conversion and an inverse masking calculation, col. 13, lines 7-55)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the display driving method disclosed in Funke, converting means by numerical calculation as disclosed in Yamamoto, to provide

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accuracy in the conversion process for values not provided in the conversion tables.

Regarding claim 5, Funke fails to disclose said first signal processing circuit and said second signal processing circuit are provided for respective RGB colors.

(Yamamoto discloses the image is captured as a RGB digital signal into the image processing apparatus via the image input circuit, col. 11, lines 22-25)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the display driving method disclosed in Funke, first and second signal processing circuit for RGB signals as disclosed in Yamamoto, to provide accuracy in the color video signals on the display device.

Regarding claim 6, Funke fails to disclose and average value of a signal level of the noise signal is set to zero.

(Yamamoto discloses assuming a value between $f(i-1)$ and $f(i)$, col. 12, lines 1-17, superposes the noise component)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the display driving method disclosed in Funke, assuming a value between the signal level of the noise component as disclosed in Yamamoto, to provide accuracy in the display signal of the video with the added noise.

Regarding claim 9, Funke fails to disclose a histogram of amplitude of the noise signal shows Gaussian dispersion where zero amplitude of the noise signal is at the center.

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(Yamamoto discloses the random number have a Gaussian distribution, col. 14, lines 31-39)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the display driving method disclosed in Funke, Gaussian dispersion as disclosed in Yamamoto, to provide accuracy in the conversion process.

Allowable Subject Matter

8. Claims 3-6, 8, 9, 13-15, 19, 20 and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Motilewa A. Good-Johnson
Examiner
Art Unit 2672

mgj